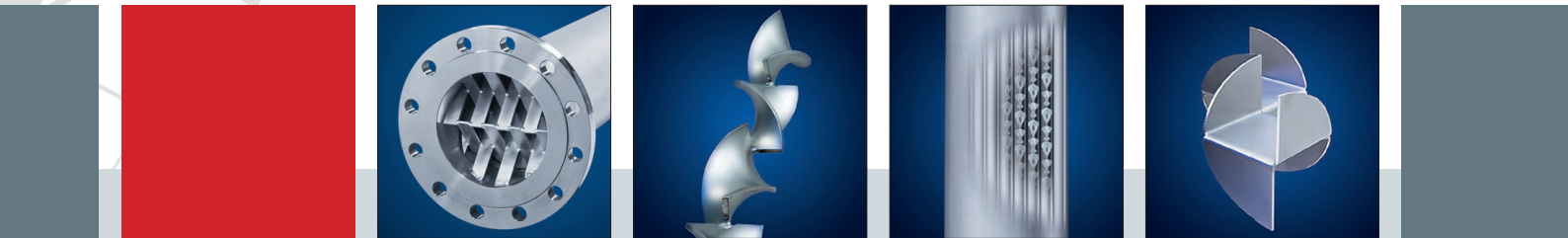




# Static Mixer Heat Exchanger



Verfahrenstechnik

# Company

STRIKO Verfahrenstechnik has been a reliable partner for plant engineering and construct on including the chemical, petrochemical, pharmaceutical, food and process engineering industry for over 35 years.

Our high-quality products and engineering services guarantee highest plant and process safety as a result of the long-term experience of our employees and design of pressure vessels according to effective rules and standards.

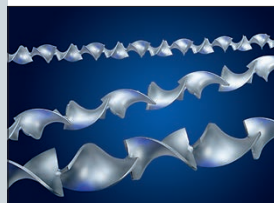
Project-related drawings are generated in a 2D/3D CAD system. Product-related parameters like required minimum net flow area of rupture disks, pressure drop and mixing quality of static mixers, heating- or cooling performance of heat exchangers as well as deposition rate of de-misters are calculated and the results will be tested in our in-house test facility if required. An extensive warehouse and flexible manufacturing processes provide a high level of availability of products, which are often custom-made.

From our head office in Wiehl-Bomig we advise and supply well-known chemical companies and numerous medium-sized companies from all branches. We also deliver customised solutions to complement our standard programme of services.

**We will definitely find a solution for you, because our strengths are:**

**INNOVATION – QUALITY – RELIABILITY**

So why not put us to the test!



# Static Mixer

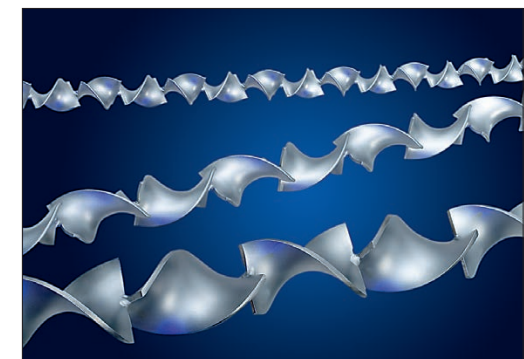
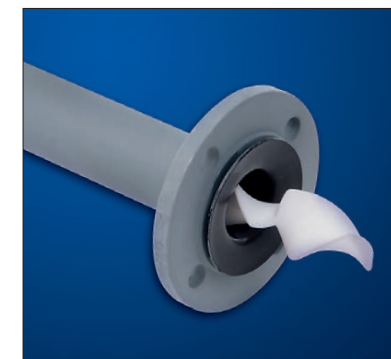
STRIKO static mixers are successfully applied to a wide range of process operations in various industrial branches including mixing, dispersion, emulsion, reaction and heat exchange.

The use of static mixers signifies extremely low investments and operating costs, which, among other factors, are also achieved by the fact that the low energy requirement for the mixing procedure is taken from the product flow.

Static mixers guarantee continuous operation in closed piping systems. They contain no moving parts and are therefore virtually free from wear. Static mixers are maintenance-free, can be cleaned, sterilised and steamed inline, yet also easily dismantled on request.

Heat exchangers are also often installed with STRIKO mixing elements. The constant movement of the fluid being moved from the pipe centre to the pipe walls and each fluid direction change causes an increase in the heat transfer, thus saving on the length of a construction project.

Our experts at STRIKO Verfahrenstechnik would be happy to offer you a personal and detailed consultation.



# Product Range Static Mixer



## EREstat® - The "Food Mixer"

EREstat® by STRIKO is a self-cleaning static mixer for the carbonation and air injection of fluids and for mixing various media. Main range of application is in the food industry, even if this is pending on detail of application.

### Materials:

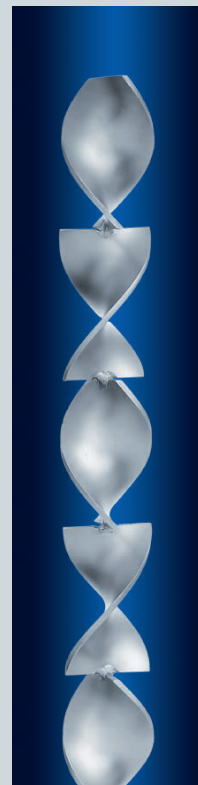
all usual stainless steels, carbon steels, plastics, special materials

### Dimensions:

DN 15 up to DN 500

### Application field:

- Production of ice-cream
- Mixing of fruit pieces into yoghurt
- CO2 carbonation into various types of drinks
- Air injection into hair gel, air bubble injection



## Helical and K-Helical - The "Universal Mixer"

Helical / K-Helical by STRIKO are statically working inline mixers to mix low-viscosity media (fluids and gases). The area of applications has a wide range, starting from e-polished lab mixer up to heavy duty application in the petroleum industry.

### Materials:

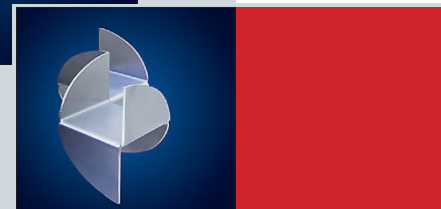
all usual stainless steels, carbon steels, plastics, special materials

### Dimensions:

Helical: DN 3 up to DN 125  
K-Helical: DN 125 up to DN 2000

### Application field:

- sterile applications  
(use of soldered-on mixer elements)  
production of insulin
- food sector  
homogenization of mayonnaise
- plastic processing  
in combination with heat exchangers for homogenization and tempering of mixing goods prior to injection moulding
- mixing of fluids like, for example, paint
- can be combined with other mixing element types for further applications



## STX - The "Viscosity Mixer"

The static mixer type STX is designed to mix media with high viscosity, even if the use to aerate different fluids is also possible. At dimensioning of STX it is very important to control the flow velocity of the fluids, because geometrically related increases in shearing forces occur - is taken into consideration in customised design.

### Materials:

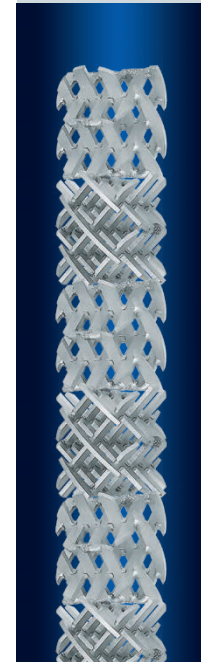
all usual stainless steels, carbon steels, plastics, special materials

### Dimensions:

DN 15 up to DN 2000

### Application field:

- mixing of ammoniac into pea starch
- processed cheese manufacture  
(mixing of spices / ingredients)
- inking of silicon
- tempering of plastics
- aroma / colour addition into bonbon-mass



## STV - The "Gas Mixer"

STV is mainly used to mix big volume flows of gases. Also excellent mixing results can be realised at the production of emulsions and foams, even if these are special applications to be calculated in a detailed way.

### Materials:

all usual stainless steels, carbon steels, plastics, special materials

### Dimensions:

DN 25 up to DN 2000

### Application field:

- after-treatment of exhaust gases, NOx removal
- spraying of finely dispersed fluids in strong gas flows
- binding of particles in exhaust gas flows
- combination of various mixer types possible in connection with permitted drop in pressure and required mixing quality every times according to customised design



# Heat Exchanger for high viscous media

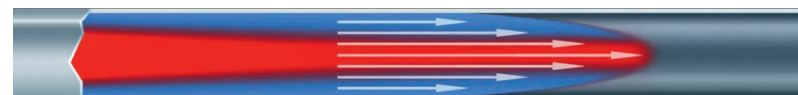
## Multi-tube heat exchanger

Multi-tube heat exchangers from STRIKO are designed to temper media with high viscosity. Thereby the product tubes are equipped with mixing elements Helical type which prevent a „fouling“ of the product at the surface of the tubes due to constant mixing also with low one-digit Reynold numbers.

The mixing elements can be either be pressed or shrunk and soldered on. Soldering not only prevents any gaps between mixing elements and pipe, but also offers a high overall heat transfer co-efficient and axial resistance. The area of application for multi-tube / double jacket heat exchangers with integrated mixing elements covers a range of 50,000mPas.

## Operating principle

When conveying viscous media, there is an uneven distribution of flow velocity in the product pipe. This effect is amplified, for example, when cooling viscous media whose dynamic viscosity increases with decreasing temperatures. In this case, fouling occurs in the product pipe, which tremendously reduces the cooling performance of the heat exchanger; it could even be that individual pipes get completely clogged.

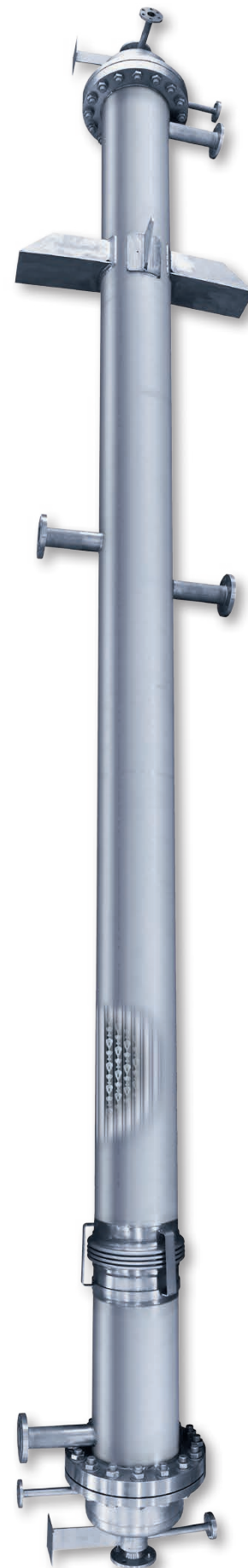


Flow without S-Helical mixing elements

This effect can be greatly reduced or even prevented by using STRIKO S-Helical mixing technology. As a result, the heat exchanger can be operated with a constantly high performance over a long period of time, which can reduce downtimes and maintenance costs significantly.



Flow with S-Helical mixing elements



### Materials:

all standard types of carbon- and stainless steel, special materials such as Duplex or Hastelloy®

### Nominal widths of tempering jacket:

DN100 to DN1000

(other dimensions are available on request and depending on the application)

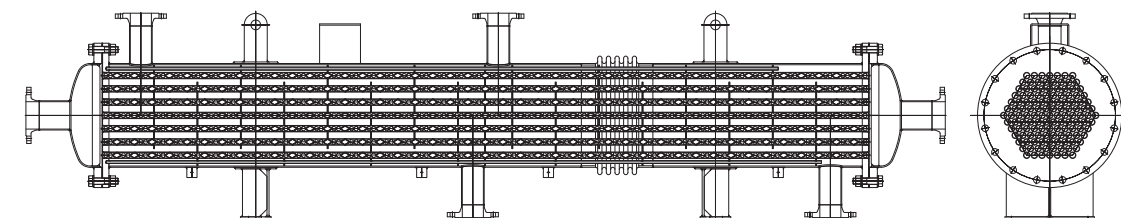
### Heating- /cooling performance:

depending on model up to 2,500 kW

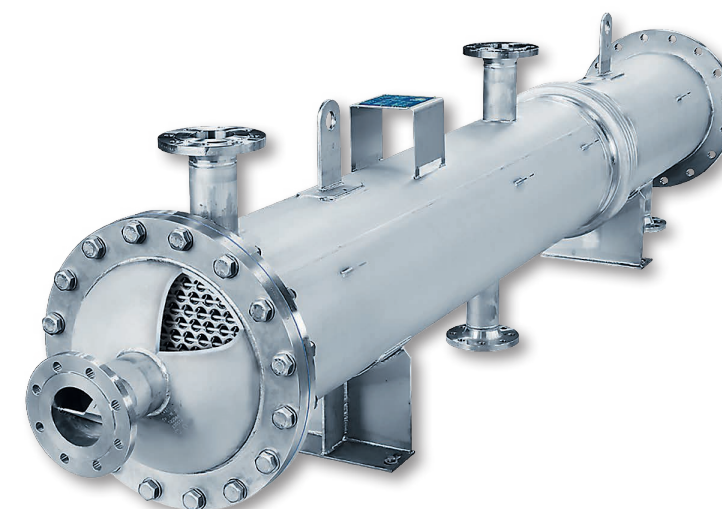
### Application examples:

- Cooling of silicone, bitumen, hexane
- Heating of sugar-starch syrup, PE-petrol solution, viscous oils
- Trace heating for static mixers (double jacket for chocolate mass)
- Tempering of plastic melt

### Standard design:



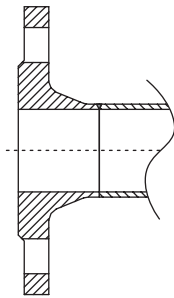
Example of a multi-tube heat exchanger (straight pipe design, two chamber tempering, with S-Helical elements)



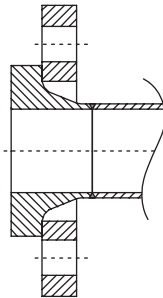


## Connections

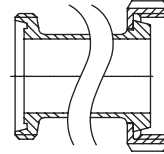
STRIKO is offering unlimited possibilities regarding used connections of static mixers - always based on customer request and demand. Beside flanges and screw connections, clamps or welding preparation STRIKO can prepare special solutions in a flexible and easy way.



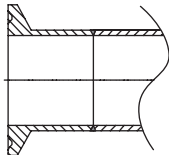
e.g. fixed flange acc. to  
DIN EN 1092-1 Type 11



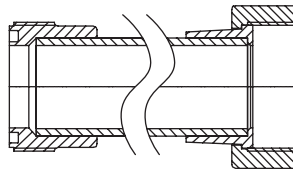
e.g. loose flange acc. to  
DIN EN 1092-1 Type 04



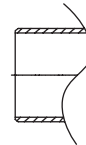
e.g. screw connection  
acc. to DIN 11851



e.g. Clamp stub  
acc. to ISO 2852



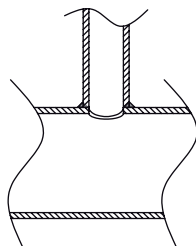
e.g. GF screw connections  
for PVC  
(also for other plastics)



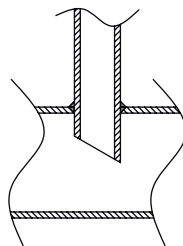
welding preparation  
for e.g. big dimensions

## Dosing Points (static mixer)

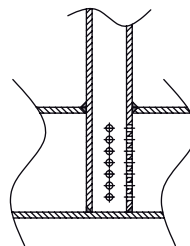
Also in the area of dosing points STRIKO offers a wide range of possibilities. In dependence of each application the selection of the right variant is very important. The main target - to get the best mixing quality at lowest pressure drop - is just achievable with the best combination of mixing element type and dosing point. Therefore the whole system of static mixer has to be analysed.



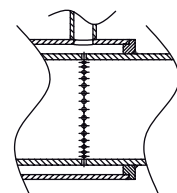
T-fitting



Centerline



dosing lance



ring dosing



Verfahrenstechnik

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